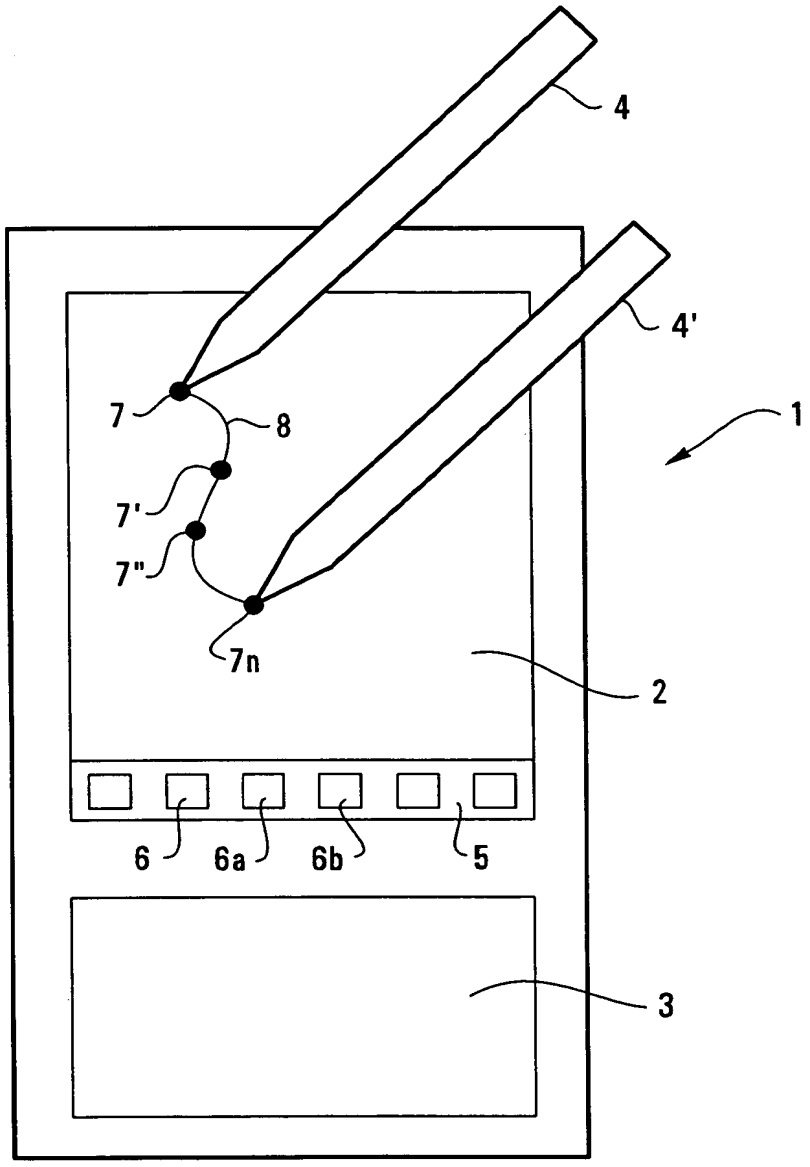

Figure 1

Table 1	
Relation	**Formula**
Linear	$y = m(x-h) + k$
Quadratic	$y = a(x-h)^2 + k$
Circle	$(x-h)^2 + (y-k)^2 = r^2$
Ellipse	$(x-h)^2/a^2 + (y-k)^2/b^2 = 1$
Hyperbola1	$(x-h)^2/a^2 - (y-k)^2/b^2 = 1$
Hyperbola2	$(y-k)^2/b^2 - (x-h)^2/a^2 = 1$
Parabola1	$y = a(x-h)^2 + k$
Parabola2	$(y-k)^2 = c(x-h)$
Exponential1	$y = b \cdot a^x + k$
Exponential2	$y = b \cdot e^{ax} + k$
Logarithmic	$y = b \cdot \ln(a(x-h)) + k$
Power	$y = a(x-h)^r + k$
Sine	$y = b \cdot \sin(a(x-h)) + k$
Cosine	$y = b \cdot \cos(a(x-h)) + k$

Figure 2

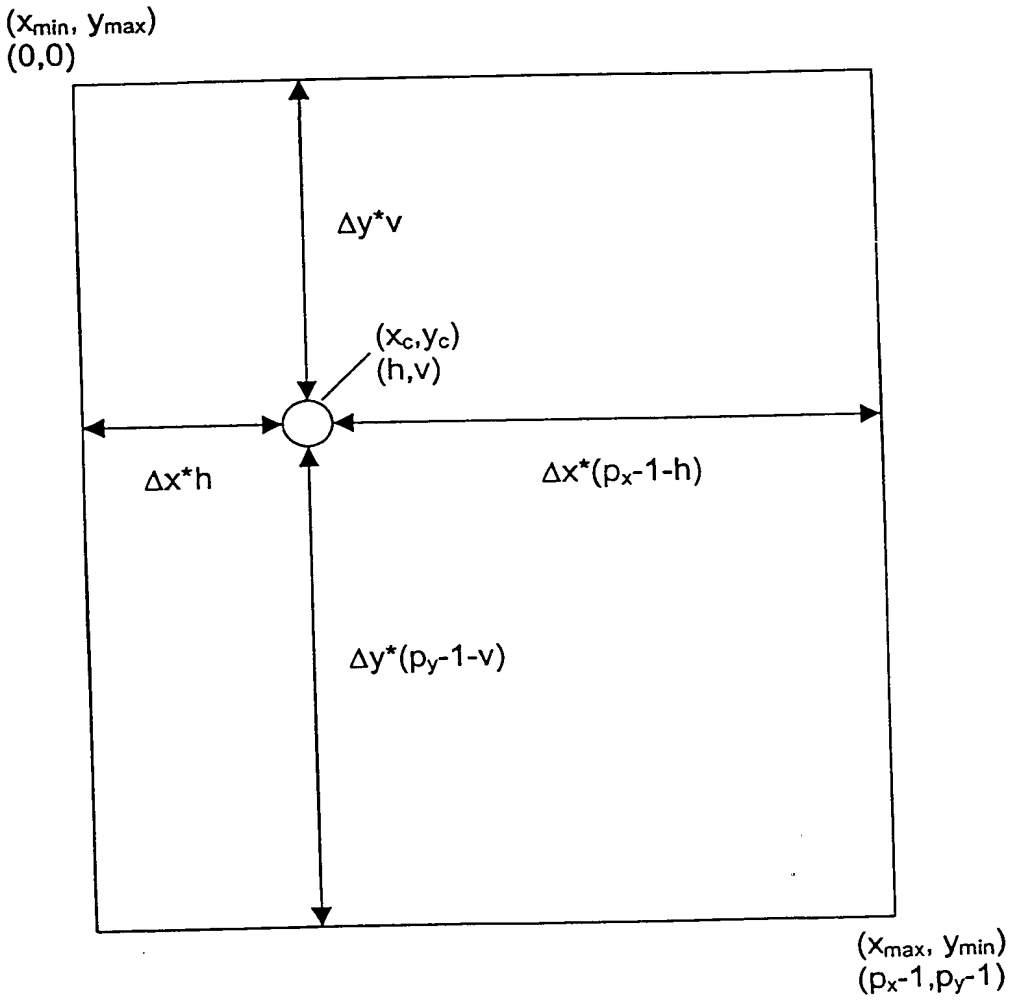
(x_{min}, y_{max})
(0,0)
Δy^*v
(x_c,y_c)
(h,v)
Δx^*h
$\Delta x^*(p_x-1-h)$
$\Delta y^*(p_y-1-v)$
(x_{max}, y_{min})
(p_x-1,p_y-1)

Figure 3

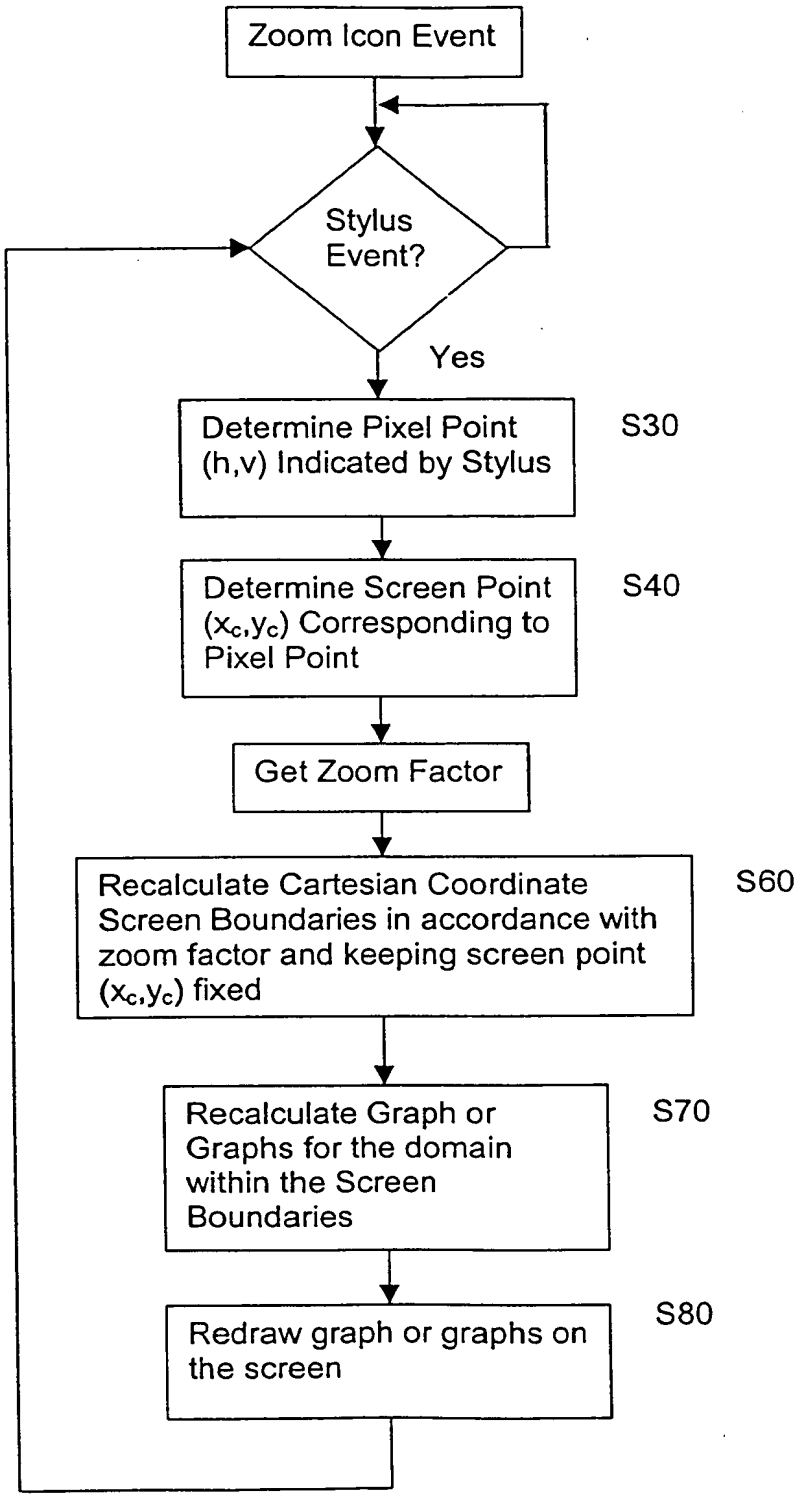
Zoom Icon Event
Stylus Event?
Yes
Determine Pixel Point (h,v) Indicated by Stylus
S30
Determine Screen Point (x_c,y_c) Corresponding to Pixel Point
S40
Get Zoom Factor
Recalculate Cartesian Coordinate Screen Boundaries in accordance with zoom factor and keeping screen point (x_c,y_c) fixed
S60
Recalculate Graph or Graphs for the domain within the Screen Boundaries
S70
Redraw graph or graphs on the screen
S80

Figure 4

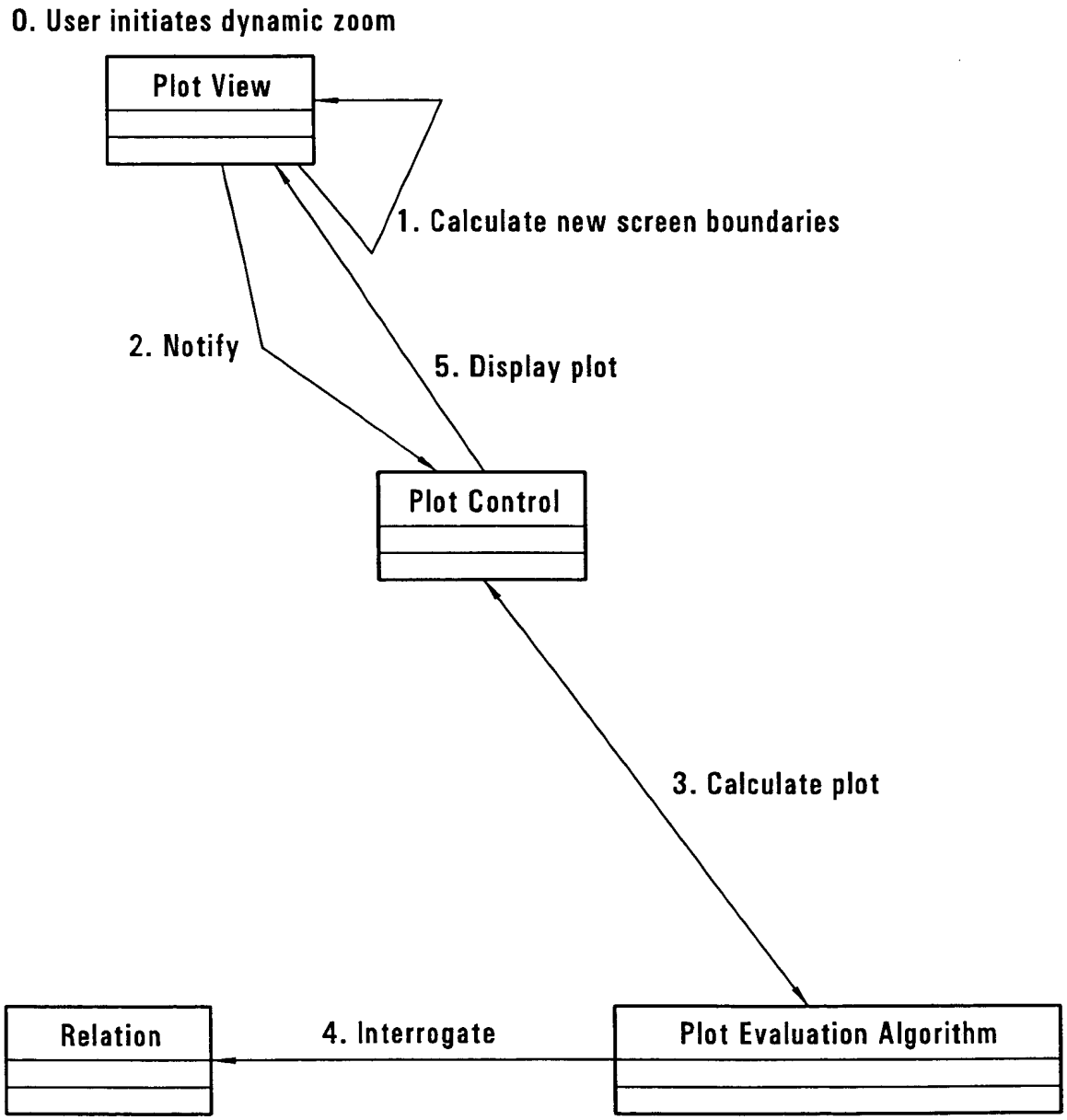
0. User initiates dynamic zoom
Plot View
1. Calculate new screen boundaries
2. Notify
5. Display plot
Plot Control
3. Calculate plot
Relation
4. Interrogate
Plot Evaluation Algorithm

Figure 5

TO0620 S52h2B60

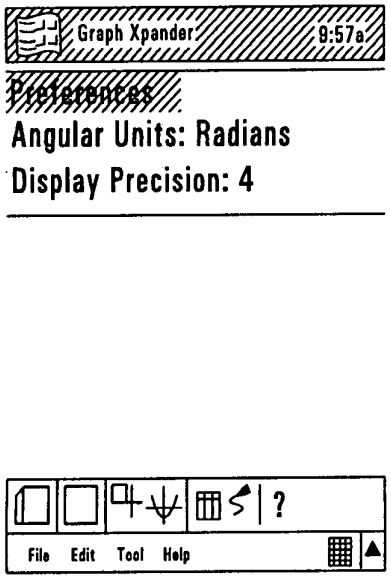

Figure 6

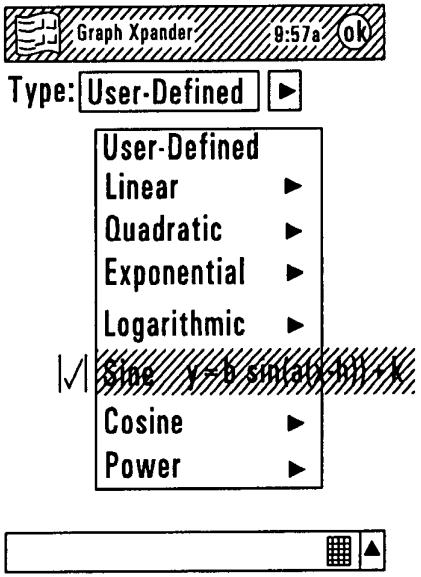

Figure 7

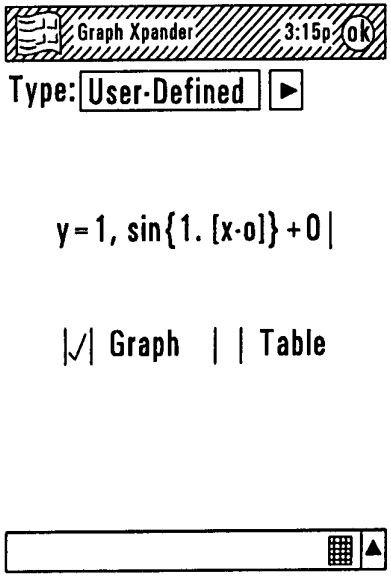

Figure 8

TITLE: System And Method For Manipulating An Image On A Screen
INVENTOR: Peter Alexander Grossman
HP PDNO. 70006210-1
6/7

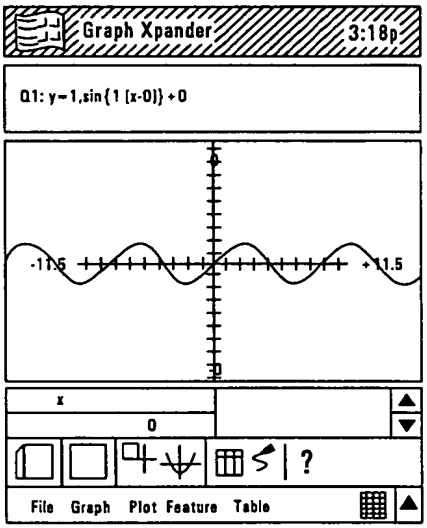

Figure 9

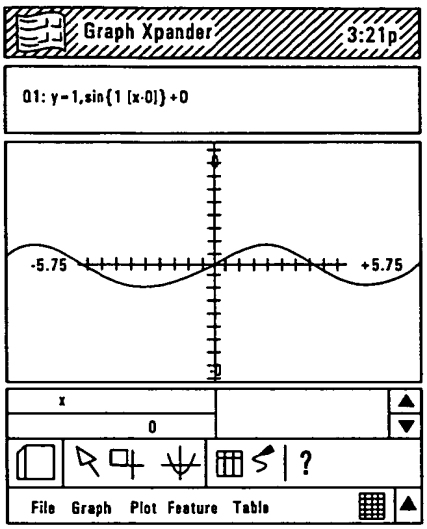

Figure 10

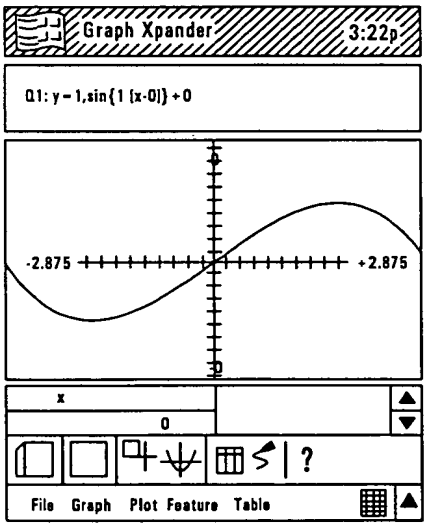

Figure 11

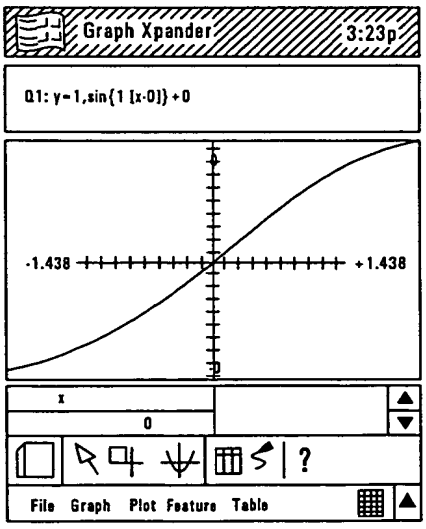

Figure 12

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